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DT05 Rec'd CT/PTO 07 DEC 2004

**FACSIMILE TRANSMISSION FORM**

SENT TO: European Patent Office  
International Preliminary Examining Authority  
FAX NO: 49-89-2399-4465

SENT FROM: Oshima, Yoichi (Mr.)  
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FAX NO: 813-3269-8243

DATE: January 15, 2004

RE: International Application No. PCT/JP03/09170

Our Ref: F910PCT

TOTAL PAGES INCLUDING THIS PAGE: 6 PAGES

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patents trademarks designs

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Date: 15. 01. 2004

European Patent Office  
International Preliminary Examining Authority  
D-80298 Munich,  
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## Response to Written Opinion

### 1. Identification of the International Application

PCT/JP03/09170

### 2. Applicant

(except US)

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# OSHIMA & NARUSHIMA

4. Agent's File Reference

F910

5. Date of Notification

28. 11. 2003

6. Item to be Amended

Claims

7. Subject Matter of Amendment

Dear Sir,

As per the attached sheets, the Applicant(s), who received the Written Opinion dated 28. 11. 2003 relating the above identified International Application, hereby file a written reply accompanied by an amendment under Article 34(2) (Rule 66.3).

## IN THE CLAIMS

The Applicant(s) amend claims 1 and 3, and cancel claims 2 and 4 as follows, with additions underlined and deletions enclosed in brackets. Other claims remain unchanged:

1. (amended) A slotless permanent magnet rotary electric machinery, comprising a substantially cylindrical rotor incorporated with a permanent magnet, a stator iron core surrounding the rotor; and a coil provided between the rotor and stator core in a spaced relationship with respect to the rotor, characterized by that:

the coil comprises a plurality of turns which are shifted from one turn to another along the circumferential direction in a mutually overlapping manner; and

the coil turns are formed by a conductor having an elongated cross section, a long axis of the cross section extending in a radial direction,

wherein the conductor is provided with a rectangular cross section having a long side and short side, and the long side extends in a radial direction and wherein the rectangular cross section of the conductor is rounded at the four corners thereof.

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2. (canceled).

3. (amended) A slotless permanent magnet rotary electric machinery according to claim [2] 1, wherein the conductor consists of a Litz wire conductor.

4. (canceled)

5-9 (unchanged)

## REMARKS

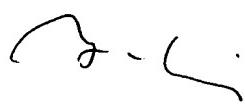
Claim 1 was amended to incorporate features recited in the original claims 2 and 4, and claim 3 was amended to depend from the amended claim 1. Thus, the amendments introduce no new matter.

As to the amended claim 1, the Applicant believes that none of the references cited in the International Search Report have disclosed a conductor provided with a rectangular cross section having a long side and short side, wherein the long side extends in a radial direction and wherein the rectangular cross section of the conductor is rounded at the four corners thereof.

Further, as to claim 5, the Applicant could find no teaching in the references cited as to using first and second wires having different diameters in wrapping a flat conductor in an edgewise fashion.

Thus, in the light of the amended claims submitted herewith and the arguments set forth above, the Examiner is respectfully requested to waive the objections as to patentability and issue a favorable International Examination Report.

Yours very truly,



OSHIMA Yoichi

Attachment:

(1) Replacement Page 18

**REPLACEMENT PAGE(S)**

**18**

**FOR**

**1. Identification of the International Application**

PCT/JP03/09170

**2. Applicant**

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**4. Agent's File Reference**

F910

## CLAIMS

1. (amended) A slotless permanent magnet rotary electric machinery, comprising a substantially cylindrical rotor incorporated with a permanent magnet, a stator iron core surrounding the rotor; and a coil provided between the rotor and stator core in a spaced relationship with respect to the rotor, characterized by that:
  - the coil comprises a plurality of turns which are shifted from one turn to another along the circumferential direction in a mutually overlapping manner; and
  - the coil turns are formed by a conductor having an elongated cross section, a long axis of the cross section extending in a radial direction,

wherein the conductor is provided with a rectangular cross section having a long side and short side, and the long side extends in a radial direction and wherein the rectangular cross section of the conductor is rounded at the four corners thereof.
- 15 2. (canceled).
3. (amended) A slotless permanent magnet rotary electric machinery according to claim 1, wherein the conductor consists of a Litz wire conductor.
- 20 4. (canceled)
5. A method of making a coil for a slotless permanent magnet rotary electric machinery, the coil including a plurality of turns of a flat conductor having a rectangular cross section including a long side and short side, the turns being formed

## INTERNATIONAL SEARCH REPORT

International application No  
PCT/EP 03/09170

## A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 H02K3/47 H02K15/04 H01F41/06 H01F41/12

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)  
IPC 7 H02K H01F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	PATENT ABSTRACTS OF JAPAN vol. 2003, no. 01, 14 January 2003 (2003-01-14) & JP 2002 272049 A (YASKAWA ELECTRIC CORP), 20 September 2002 (2002-09-20) abstract	1,2
Y	---	1-4
Y	PATENT ABSTRACTS OF JAPAN vol. 2003, no. 03, 5 May 2003 (2003-05-05) & JP 2002 325406 A (HONDA MOTOR CO LTD), 8 November 2002 (2002-11-08) abstract; figures 2-5	1-4
X	EP 1 073 179 A (HONDA MOTOR CO LTD) 31 January 2001 (2001-01-31)	1-4
Y	column 7, line 43 -column 11, line 44; figures 2,3,5-8,10	4,5,7-9
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Further documents are listed in the continuation of box C.

Patent family members are listed in annex.

## \* Special categories of cited documents :

- \*A\* document defining the general state of the art which is not considered to be of particular relevance
- \*E\* earlier document but published on or after the international filing date
- \*L\* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- \*O\* document referring to an oral disclosure, use, exhibition or other means
- \*P\* document published prior to the international filing date but later than the priority date claimed

- \*T\* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- \*X\* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- \*Y\* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- \*&\* document member of the same patent family

Date of the actual completion of the international search

1 October 2003

Date of mailing of the international search report

10/10/2003

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**INTERNATIONAL SEARCH REPORT**

Information on patent family members

International application No

PCT/03/09170

Patent document cited in search report		Publication date	Patent family member(s)		Publication date
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JP 2002325406	A	08-11-2002	NONE		
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EP 0251029	A	07-01-1988	DE 3621095 A1 AT 68639 T DE 3773762 D1 EP 0251029 A1 ES 2027657 T3 GR 3003578 T3 JP 2009898 C JP 7044122 B JP 63014412 A KR 9108541 B1	07-01-1988 15-11-1991 21-11-1991 07-01-1988 16-06-1992 16-03-1993 02-02-1996 15-05-1995 21-01-1988 18-10-1991	